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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/087,558

02/28/2002

Ross S. Dando

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EXAMINER

ZERVIGON, RUDY

ART UNIT

PAPER NUMBER

1792

MAIL DATE

DELIVERY MODE

02/24/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/087,558	DANDO ET AL.	
	Examiner	Art Unit	
	Rudy Zervigon	1792	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 December 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 62-69 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 62-69 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 February 2002 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on December 1, 2008 has been entered.

Drawings

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the “head elongated segment”, “proximal portion”, “distal portion” must be shown or the feature canceled from the claims. No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either “Replacement Sheet” or “New Sheet”

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pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

3. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: See above.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claim 64 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 64 recites “the head”, however, it is uncertain if Applicant refers to the antecedent “head of the body” or the antecedent “head elongated segment”.

Claim Rejections - 35 USC § 103

6. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

7. Claims 62-65 and 67 are rejected under 35 U.S.C. 103(a) as being unpatentable over Srivastava; Aseem K. (US 6,225,745 B1). Srivastava teaches a reactive precursor feeding manifold assembly, comprising: an elongate body (10b; Figure 1b; column 3; lines 20-44) having a first end (portion 38 near bottom-most 36; Figure 1b) and a second end (51; Figure 1b), the

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body (10b; Figure 1b; column 3; lines 20-44) defining a tubular chamber (38+34+32b; Figure 1b) having a continuous sidewall with the first end (portion 38 near bottom-most 36; Figure 1b) defining a head of the body (10b; Figure 1b; column 3; lines 20-44) and the second end (51; Figure 1b) defining a flange (52; Figure 1b) encompassing an opening (outlet at 51; Figure 1b) defined by the sidewall of the body (10b; Figure 1b; column 3; lines 20-44), and a plurality of lateral elongate segments (orthogonal piping on other 36's besides lowest 36; Figure 1b) extending from the sidewall normal to the axis, individual ones of the lateral segments (orthogonal piping on other 36's besides lowest 36; Figure 1b) being in fluid communication with the chamber (38+34+32b; Figure 1b) and extending to individual multi-inlet valves (36s; Figure 1b) – claim 62.

Srivastava further teaches:

- i. The assembly of claim 62 wherein the flange (52; Figure 1b) is configured to couple to a deposition chamber (16; Figure 1b), as claimed by claim 63
- ii. The assembly of claim 62 wherein the lateral segments (orthogonal piping on other 36's besides lowest 36; Figure 1b) are stacked along the sidewall of the chamber (38+34+32b; Figure 1b), the segments (orthogonal piping on other 36's besides lowest 36; Figure 1b) including a top segment (piping on second lowest 36; Figure 1b) proximate the head and bottom segment (piping on top-most 36; Figure 1b) proximate the opening (outlet at 51; Figure 1b), as claimed by claim 64
- iii. The assembly of claim 64 wherein the multi-inlet valves (36s; Figure 1b) are stacked, the multi-inlet valves (36s; Figure 1b) including a top valve (bottom-most 36; Figure 1b) coupled to the top segment (piping on second lowest 36; Figure 1b) and a bottom valve

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(top-most 36; Figure 1b) coupled to the bottom segment (piping on top-most 36; Figure 1b), as claimed by claim 65

Srivastava does not teach:

- i. a first end (portion 38 near bottom-most 36; Figure 1b) extending along a longitudinal axis to a second end (51; Figure 1b) – claim 62
- ii. a head elongated segment (piping on lowest 36; Figure 1b) extending from the head along the axis to a single inlet valve (bottom-most 36; Figure 1b), the head segment being aligned along the axis with the opening (outlet at 51; Figure 1b) and in fluid communication with the chamber (38+34+32b; Figure 1b) – claim 62
- iii. The assembly of claim 65 wherein the multi-inlet valves (36s; Figure 1b) include only two valves and the valves are aligned normal to one another, as claimed by claim 67

Because Srivastava does not state that his Figure 1b is drawn to scale, the 90° bends in the chamber (38+34+32b; Figure 1b) may not represent the *actual* structure in practice. As a result, it would have been obvious to one of ordinary skill in the art at the time the invention was made to optimize the dimension(s) of Srivastava's piping and number of multi-inlet valves (36s; Figure 1b).

Motivation to optimize the dimension(s) of Srivastava's piping and number of multi-inlet valves (36s; Figure 1b) is to accommodate Srivastava apparatus in its processing environment, and for using only three process gases, as would be required, thereby saving materials and equipment costs. It is well established that the rearrangement of parts is considered obvious to those of ordinary skill (*In re Japikse* , 181 F.2d 1019, 86 USPQ 70 (CCPA 1950); *In re Kuhle* , 526 F.2d 553, 188 USPQ 7 (CCPA 1975); *Ex parte Chicago Rawhide Manufacturing Co.* , 223 USPQ

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351, 353 (Bd. Pat. App. & Inter. 1984).; MPEP 2144.04). It is well established that changes in apparatus dimensions are within the level of ordinary skill in the art.(Gardner v. TEC Systems, Inc. , 725 F.2d 1338, 220 USPQ 777 (Fed. Cir. 1984), cert. denied , 469 U.S. 830, 225 USPQ 232 (1984); In re Rose , 220 F.2d 459, 105 USPQ 237 (CCPA 1955); In re Rinehart, 531 F.2d 1048, 189 USPQ 143 (CCPA 1976); See MPEP 2144.04).

8. Claims 66, 68, and 69 are rejected under 35 U.S.C. 103(a) as being unpatentable over Srivastava; Aseem K. (US 6,225,745 B1) in view of Onda; Shinzaburo et al. (US 5395482 A). Srivastava is discussed above. Srivastava does not teach:

- i. The assembly of claim 65 wherein the multi-inlet valves (36s; Figure 1b) include only two inlets and the inlets are aligned normal to one another, as claimed by claim 66
- ii. The assembly of claim 65 wherein the multi-inlet valves (36s; Figure 1b) include a proximal portion and distal portion, the proximal portion defining openings for the valves and inlets, the distal portion being substantially planar, as claimed by claim 68
- iii. The assembly of claim 68 wherein the plane of the distal portion is aligned normal to the axis of the chamber (38+34+32b; Figure 1b), as claimed by claim 69

Onda teaches a semiconductor processing apparatus (Figure 2) including:

- iv. A multi-inlet valve (V49; Figure 3) include only two inlets and the inlets are aligned normal to one another, as claimed by claim 66
- v. the multi-inlet valve (V49; Figure 3) include a proximal portion (piping interfaces on V49 inlets) and distal portion (portion of V49 not having an inlet), the proximal portion (piping interfaces on V49 inlets) defining openings for the valve (V49; Figure 3) and

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inlets, the distal portion (portion of V49 not having an inlet) being substantially planar, as claimed by claim 68

- vi. The assembly of claim 68 wherein the plane of the distal portion (portion of V49 not having an inlet) is aligned normal to the axis of the chamber (piping entering V49 horizontally; Figure 1b), as claimed by claim 69

It would have been obvious to one of ordinary skill in the art at the time the invention was made to replace Srivastava's multiple valves (36s; Figure 1b) with multi-inlet valves as taught by Onda under optimized orientation.

Motivation to replace Srivastava's multiple valves (36s; Figure 1b) with multi-inlet valves as taught by Onda under optimized orientation is for reducing material costs of construction of Srivastava's apparatus and for reducing maintenance costs of additional parts. It is well established that the rearrangement of parts is considered obvious to those of ordinary skill (In re Japikse , 181 F.2d 1019, 86 USPQ 70 (CCPA 1950); In re Kuhle , 526 F.2d 553, 188 USPQ 7 (CCPA 1975); Ex parte Chicago Rawhide Manufacturing Co. , 223 USPQ 351, 353 (Bd. Pat. App. & Inter. 1984).; MPEP 2144.04)

Conclusion

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Rudy Zervigon whose telephone number is (571) 272-1442. The examiner can normally be reached on a Monday through Friday schedule from 9am through 5pm. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300. Any Inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Chemical and Materials Engineering art unit

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receptionist at (571) 272-1700. If the examiner can not be reached please contact the examiner's supervisor, Parviz Hassanzadeh, at (571) 272- 1435

/Rudy Zervigon/

Primary Examiner, Art Unit 1792